

**PROPOSED DRAFT CLAIMS  
FOR CONSIDERATION IN REISSUE SERIAL NO: 09/533,906**

**IN THE PATENT**

Delete the Related U.S. Application Data [62] in its entirety and replace with:

--Divisional of Ser. No. 124,826, Sept. 21, 1993, abandoned, which is a continuation of Ser. No. 946,749, Sept. 17, 1992, abandoned, which is a continuation of Ser. No. 648,468, Jan. 31, 1991, abandoned, which is a continuation-in-part of Ser. No. 644,967, Jan. 22, 1991, abandoned, which is a continuation of Ser. No. 136,920, Dec. 21, 1987, abandoned, which is a continuation-in-part of Ser. No. 922,155, Oct. 23, 1986.--

In column 1, lines 4 through 18, amend the text as follows:

--This application [is a Reissue of Ser. No. 238,080, filed May 3, 1994, now U.S. Patent No. 5,750,338, which] is a divisional [continuation] of application Ser. No. 124,826, filed Sept. 21, 1993, now abandoned, which is a continuation of application Ser. No. 946,749, filed Sept. 17, 1992, now abandoned, which is a continuation of application Ser. No. 648,468, filed Jan. 31, 1991, now abandoned, which is a continuation-in-part of application Ser. No. 644,967, filed Jan. 22, 1991, now abandoned, which is a continuation of application Ser. No. 136,920, filed Dec. 21, 1987, now abandoned and hereby incorporated by reference, which application is a continuation-in-part of application Ser. No. 922,155, filed Oct. 23, 1986, now abandoned and hereby incorporated by reference.--

**IN THE CLAIMS**

Please cancel claims 41, 44, 47, and 53-63 without prejudice.

Please amend claims 1, 5, 7, 11, 13, 14, 16, 19, 20-22, 24-28, 30, 34-36, 38, 42, 44, 46, 48, 50, and 52 as follows:

1. (Amended) A method for amplifying a target polynucleotide contained in a sample comprising the steps of:

- (a) contacting the sample with a first support which binds to the target polynucleotide;
- (b) substantially separating the support and bound target polynucleotide from the sample; and
- (c) amplifying in vitro the separated target polynucleotide.

5. (Amended) The method of claim 4 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase [or Q $\beta$  replicase].

7. (Amended) A method for detecting a target polynucleotide contained in a sample comprising the steps of:

- (a) contacting the sample with a first support which binds to the target polynucleotide;
- (b) substantially separating the first support and bound target polynucleotide from the sample;
- (c) amplifying in vitro the separated target polynucleotide; and
- (d) detecting the presence of the amplified target polynucleotide as indicative of the presence of the target polynucleotide in said sample.

11. (Amended) The method of claim 10 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase [or Q $\beta$  replicase].

13. (Amended) The method of claim 7 wherein the amplified target polynucleotide is contacted with a label, and the presence of the target polynucleotide in the sample is indicated by detection of said label.

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14. (Amended) The method of claim 7 wherein the amplified target polynucleotide is contacted with a labeled probe, and the presence of the target polynucleotide in the sample is indicated by detection of said labeled probe.

16. (Amended) The method of claim 15 wherein the [amplified target polynucleotide is contacted with] second support includes a labeled probe, and the presence of the target polynucleotide in the sample is indicated by detection of said labeled probe.

19. (Twice amended) A method for detecting a target polynucleotide contained in a sample comprising the steps of:

- (a) contacting the sample with a first support which binds to the target polynucleotide;
- (b) substantially separating the first support and bound target polynucleotide from the sample;
- (c) amplifying in vitro the [sample] separated target polynucleotide with a DNA polymerase;
- (d) contacting the amplified target polynucleotide with a second support which binds to the amplified target polynucleotide and also with a labeled probe which binds to the amplified target polynucleotide; and
- (e) detecting the presence of the [amplified target polynucleotide] labeled probe as indicative of the presence of the target polynucleotide in said sample.

20. (Amended) A kit for detecting a target polynucleotide contained in a sample comprising:

- (a) means for substantially separating the target polynucleotide from the sample prior to amplification of the target polynucleotide;
- (b) means for amplifying in vitro the separated target polynucleotide;
- (c) means for binding the amplified target polynucleotide to a solid support; and

(d) means for labeling the amplified target polynucleotide.

21. (Amended) The kit of claim 20 wherein:

(a) the means for substantially separating the target polynucleotide from the sample include a first support;

(b) the means for amplifying in vitro the separated target polynucleotide include a polymerase;

(c) the means for binding [that] the amplified target polynucleotide to a solid support include a capture probe which binds to the solid support and to the amplified target polynucleotide; and

(d) [a detector probe] the means for labeling the amplified target polynucleotide include a detector probe.

22. (Amended) The kit of claim 21 further comprising a [capture] probe which binds to the first support and to the target polynucleotide.

24. (Amended) A kit for amplifying a target polynucleotide contained in a sample comprising:

(a) means for substantially separating the target polynucleotide from the sample prior to amplification of the target polynucleotide; and

(b) means for amplifying in vitro the separated target polynucleotide.

25. (Amended) The kit of claim 24 wherein:

(a) the means for substantially separating the target polynucleotide from the sample includes a support which binds to the target polynucleotide; and

(b) the means for amplifying in vitro the separated target polynucleotide [includes] include a polymerase.

26. (Amended) The kit of claim 25 wherein:

(a) the polymerase is a DNA polymerase; and

(b) the means for substantially separating the target polynucleotide from the sample

[includes] include a probe which binds to the target polynucleotide and the support.

27. (Amended) A method for amplifying a target polynucleotide contained in a sample medium comprising the steps of:

(a) contacting the sample medium with reagent comprising a first nucleic acid probe which binds to the target polynucleotide to form a probe-target complex;

(b) contacting the sample medium with a support which binds to the first nucleic acid probe of the probe-target complex;

(c) substantially separating the support and bound probe target complex from the sample medium;

(d) contacting the support and bound probe-target complex with a second medium;

(e) releasing the probe-target complex into the second medium;

(f) substantially separating the support from the second medium; and

(g) amplifying in vitro the target polynucleotide present in the second medium.

28. (Amended) A method for detecting a target polynucleotide contained in a sample medium comprising the steps of:

(a) contacting the sample medium with reagent comprising a first nucleic acid probe which binds to the target polynucleotide to form a probe-target complex;

(b) contacting the sample medium with a support which binds to the first nucleic acid probe of the probe-target complex;

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- (c) substantially separating the support and bound probe-target complex from the sample medium;
- (d) contacting the support and bound probe-target complex with a second medium;
- (e) releasing the probe-target complex into the second medium;
- (f) substantially separating the support from the second medium;
- (g) amplifying in vitro the target polynucleotide present in the second medium; and
- (h) detecting the presence of the target polynucleotide in the second medium as indicative of the presence of the target polynucleotide in said sample.

30. (Amended) The method for detecting a target polynucleotide of claim 29 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase[, or Q $\beta$  replicase].

34. (Amended) A method for amplifying a target polynucleotide contained in a sample medium comprising the steps of:

- (a) contacting the sample medium with a support and a probe which binds to the target polynucleotide and the support;
- (b) substantially separating the support and bound probe and target polynucleotide from the sample medium;
- (c) contacting the support and bound probe and target polynucleotide with a second medium;
- (d) releasing the target polynucleotide into the second medium;
- (e) substantially separating the support and bound probe from the second medium;
- (f) amplifying in vitro the target polynucleotide present in the second medium.

35. (Amended) The method for amplifying a target polynucleotide of claim 34 wherein the target polynucleotide is amplified with a polymerase.

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50. (Amended) The detection method of claim [[47]] 7 wherein the target polynucleotide is amplified with a polymerase and at least one oligonucleotide primer.

52. (Amended) The detection method of claim [[47]] 7 wherein the target polynucleotide is amplified with more than one polymerase.

Please add new claims 64-82 as follows:

64. The method of claim 1 wherein the separated target polynucleotide is amplified non-specifically with random primers.

65. The method of claim 1 wherein the separated target polynucleotide is amplified specifically with specially tailored primers.

66. The method of claim 7 wherein the separated target polynucleotide is amplified non-specifically with random primers.

67. The method of claim 7 wherein the separated target polynucleotide is amplified specifically with specially tailored primers.

68. The amplification kit of claim 25 wherein the means for amplifying the separated target polynucleotide include means for amplifying the target polynucleotide non-specifically with random primers.

69. The amplification kit of claim 25 wherein the means for amplifying the separated target polynucleotide include means for amplifying the target polynucleotide specifically with specially tailored primers.

70. The method of claim 9 wherein the probe first binds with the target polynucleotide by hybridizing to a specific sequence in the target polynucleotide, and then binds to the first support.

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71. The method of claim 70 wherein the separated target polynucleotide is amplified non-specifically with random primers.

72. The method of claim 70 wherein the separated target polynucleotide is amplified specifically with specially tailored primers.

73. The method of claim 72 wherein the sample is a clinical sample.

74. The method of claim 73 wherein the probe comprises a nucleotide sequence specific to a complementary nucleotide sequence in the target polynucleotide and a homopolymeric tail sequence.

75. The method of claim 74 wherein the support comprises a homopolymeric tail complementary to the homopolymeric tail of the probe.

76. A kit for detecting a target polynucleotide contained in a sample comprising:

(a) means for substantially separating the target polynucleotide from the sample prior to amplification of the target polynucleotide;

(b) means for amplifying in vitro the separated target polynucleotide; and

(c) means for detecting the presence of the amplified target polynucleotide as indicative of the presence of the target polynucleotide in the sample.

77. The detection kit of claim 76 wherein:

(a) the means for substantially separating the target polynucleotide from the sample include a first support and a probe that binds to both the first support and the target polynucleotide;

(b) the means for amplifying in vitro the separated target polynucleotide include a polymerase; and



(c) the means for detecting the presence of the amplified target polynucleotide include a detector probe.

78. The detection kit of claim 77 wherein the means for substantially separating the target polynucleotide from the sample includes a first support that binds to the target polynucleotide via a probe.

79. The detection kit of claim 78 wherein the means for substantially separating the target polynucleotide from the sample include a probe that first binds to the target polynucleotide by hybridizing to a specific sequence in the target polynucleotide, and then binds to the first support.

80. The detection kit of claim 79 wherein the means for amplifying the separated target polynucleotide include means for amplifying the target polynucleotide non-specifically with random primers.

81. The detection kit of claim 79 wherein the means for amplifying the separated target polynucleotide include means for amplifying the target polynucleotide with specially tailored primers.

82. The detection kit of claim 81 wherein the sample is a clinical sample.

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36. (Amended) The method for amplifying a target polynucleotide of claim 35 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase [or Q $\beta$  replicase].

38. (Amended) A method for detecting a target polynucleotide contained in a sample medium comprising the steps of:

- (a) contacting the sample medium with a support and probe which binds to the target polynucleotide and the support;
- (b) substantially separating the support and bound probe and target polynucleotide from the sample medium;
- (c) contacting the support and bound probe and target polynucleotide with a second medium;
- (d) releasing the target polynucleotide into the second medium;
- (e) substantially separating the support and bound probe from the second medium;
- (f) amplifying in vitro the target polynucleotide present in the second medium; and
- (g) detecting the presence of the amplified target polynucleotide in the second medium as indicative of the presence of the target polynucleotide in said sample.

42. (Amended) The amplification method of claim [[41]] 1 wherein the amplification is linear or exponential.

44. (Amended) The amplification method of claim [[41]] 1 wherein the target polynucleotide is amplified with a polymerase and at least one oligonucleotide primer.

46. (Amended) The amplification method of claim [[41]] 1 wherein the target polynucleotide is amplified with more than one polymerase.

48. (Amended) The detection method of claim [[47]] 7 wherein the amplification is linear or exponential.